

Engineering Education in New Era of Innovative Technology needs 360 degree competent Engineer to meet its goals

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Abstract: Technical Education or Engineering Education is going under a drastic change in India. Systematical evolved learning system is required, which will inculcate qualifying requirements to be posed by an engineer and these will not be limited to factual knowledge, but also many other skills. It is still unclear which competences apart from factual knowledge is actually need, and how these competencies may be addressed or acquired using appropriate education system. The goal of Engineering Education is to have technical as well as non- technical competencies which will have a 360 degree impact on improvement of a student. This paper is an effort taken in direction to throw some light upon various issues related to the difficulties faced by students as well as technical education system in India to impart technical education.

I. Introduction

In current scenario, teaching and learning requirements engineering (RE) is more difficult than it appears at first sight. This is due to the fact that a learner does not understand the importance of requirements, expect stakeholders to deliver requirements on a silver platter, or underestimate the complexity of dealing with a large number of interrelated requirements. The system of learning should emphasize on how a learning setting can systematically developed which could be used to achieve particular goals, that mainly could be used to fosters specific competences of students which are essential for them become good engineers required to serve the nation.. This research question which aims to achieve educational goals of technical education can only be tackled in a multi-disciplinary interplay of requirements [1]. These days, it is important to pay great attention to the teaching methodologies which evolved from theory of physics in Higher Educational System. As graduates from technical colleges do not fully understand the first year program designed to create the base of engineering and thus complicates learning process for mentors, the problem is more intensified as the basis science principle which includes training on electricity and magnetism at the universities is not followed the students. Nowadays, it is impossible to become a complete competent in engineering filed unless one is, diverse specialist and until one master new technologies. Currently, it is possible to widely use lectures, student conferences, seminars, competition lessons, gaming lessons, and more [2].

II. Brief Description

A) Prerequisites to ongoing problem and methods to attain a solution

Teaching electromagnetic engineering to third year students pursuing engineering degree or any domain specific subject require special skills this is in connection with the fact that the student does not understand the program of the first year and hence forth complicates the process of training mentees. The process of training students in electromagnetic is considered as a case study to obtain a solution.

In current scenario it is impossible to become a competent specialist in Engineering, until new effective methods are applied to enhance the skills of learner. The aim of the students is to become an Engineer which is the most important feature of technical competence. Particular kind of mind that can be called engineering is not a technique rather it is the way of thinking [3]. Higher technical education must be completely imbued with an idea of encouraging students to gain necessary skills and master techniques to do so. We live at time when the social order for higher education is fundamentally changing in various aspects and creating the conditions under which universities have to depend for financing directly on students, and opening the public wide access to information about the activities conducted by universities and hence demanding the request of students for high quality education system.

B) Procedure methodology

The field of activity associated with techniques and technologies, is extremely diverse and extensive. Nevertheless, there are some universal psychological qualities that largely predetermine the student's aptitude

towards his or her future goals and hence corresponds to the relevant knowledge, their capability to develop necessary skills, and their future success in the profession. A special mindset, which could be called an engineering way of thinking, is the most important, I think.

Figure no 1: shows the main building block or Structure of Engineering education in New Era.

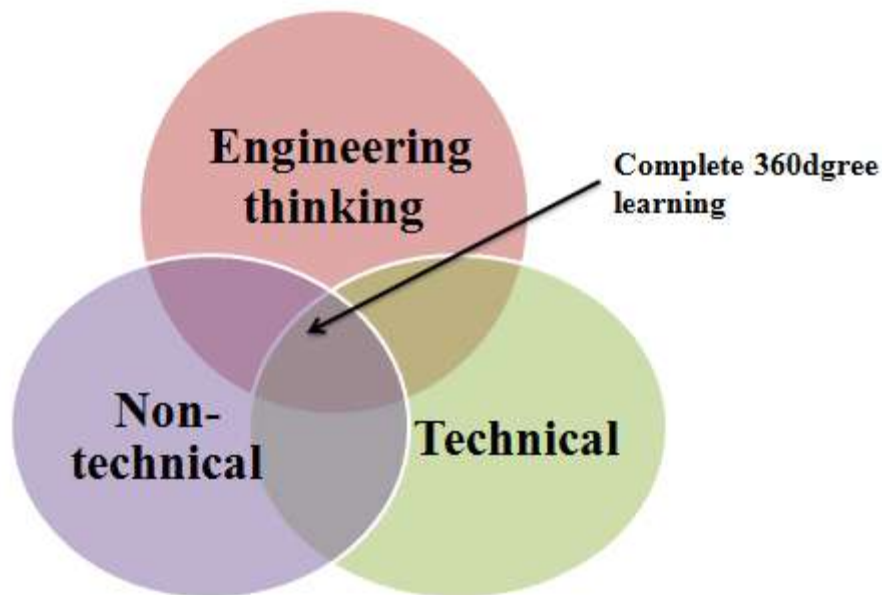


Figure no 1 Structure of Engineering education in New Era

The building block or Structure of Engineering education in New Era includes:

1. **Engineering Thinking:** This component of learning imbues in student's new style of thinking which should not be a method to learn thought rather than they should learn how to think.
2. **Non Technical:** It includes various factors one of the key components is self-assessment which includes one's own evaluation of how much, how well knowledge you have acquired.
3. **Technical:** This point in itself is a quiet vast no skill can be achieved in any domain without in-depth knowledge of the concerned domain.

Rebuild of education system is not just confined to enhance the competences of students but it deals with enhancing the skill acquired by faculty and update them to be at par with the innovative world or so called modern Era of technology. Different courses are designed in such a way, that the focus or goal is deepening on student's engagement in science, mathematics, engineering and technology content through innovations in pedagogy. A course planning process that engages instructors in continuous conversations about how to rethink and reshape current models of education within authentic ecologies of research and thereafter design connections with real-world, a framework which will involve socio-technical contexts beyond the acquisition of technical skills[4].

C) Miscellaneous Issues

Working is an important activity in people's life. Occupation is said to influence self-concept, feeling of value, peacefulness and one's personal identity this statement holds for all. Following the need to increase knowledge and skills as well as the movement towards a high intensity human capital, the demand towards highly-skilled and multi-skilled employees is likely to increase. Therefore, we need to be given more training opportunities to all to acquire new and most advanced skills as well as ones that can fit the industrial needs. Adding further, the rapid change in technology that requires new skills, more opportunities for retraining have to be given.

The private sector should also be encouraged to assist the government's effort in providing more opportunities for skills training for new upcoming technology [5].

D) Role of Parents

The scope of role of parents has been increased in reframing the technical education. It is due to the fact that when student is not getting conducive environment of study at home or outside then he/she may deviate

from the goal of the excellence and achievements. He may start engaging himself in the other activities as a result of frustration of the few initial failures and a loss of motivational support. The student may not be declared completely responsible for such an incomplete outcome of technical education, especially in the metros or so called developed cities.

III. Discussion

The framework development for application-based teaching and learning in engineering technology education needs to produce two types of engineers –

1. **Theoretical and research based engineers**
2. **Application and practice oriented engineers [6].**

Theoretical and research based engineers: This group of graduates will function for developing new technologies and come up with innovative ideas that will not only solve the problem faced by current citizens but also will act as a blessing for upcoming generations.

Application and practice oriented engineers: Will be those who are Industrial-ready graduate who is immediately able to serve as a shop floor engineer or take up a new job as an entrepreneur. This group of graduates will function as engineering technology professionals, thus, serves the engineering technology profession.

IV. Conclusion

Technical Education is the heart of any country development and youth is the blood for proper pumping of heart. So technical education is needed to be reframed and modified after working on practical issues and solving the actual problem faced in the way of progress of a technical student while making him/her competent with 360 degree improvement so that he/she can serve for the up-liftment of society. Every student who passes out from any engineering domain should be a true engineer in terms of change in his/her thinking abilities which will not only make him/her a leader in his field but also make them capable to create many more like them. Engineering will be a program that will nurture the technical as well as human values in an Engineer to change the outlook of world with its new framework. Institution will work for application-oriented and practical-oriented programs.

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